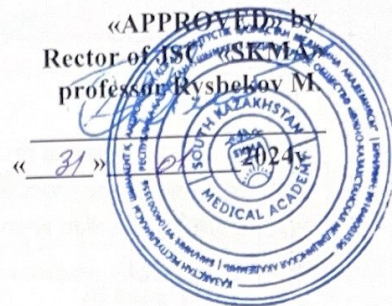


JSC "SOUTH KAZAKHSTAN MEDICAL ACADEMY"


«APPROVED» by  
Rector of JSC «SKMA»  
professor Ryshekov M.






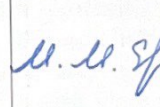
SOUTH KAZAKHSTAN  
MEDICAL  
ACADEMY

EDUCATIONAL PROGRAM OF RESIDENCY  
7R01100271  
« ONCOLOGY AND HEMATOLOGY (CHILDREN)»


Shymkent, 2024 y.

ОНТҮСТІК ҚАЗАҚСТАН MEDISINA АКАДЕМИЯСЫ «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
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The educational residency program «Oncology and hematology (children)» was developed on the basis of the order of the Minister of Health of the Republic of Kazakhstan dated January 25, 2024 No. 46 «On approval of professional standards in the field of healthcare».

Position	Full name	Signature
<b>Developed by</b>		
PTS of the Department of Pediatrics-2		
Head of the Department , PhD	G.E. Bektenova	
C.M.S , assistant professor	Zh.K. Zhumabekov	
Assistant	K.R. Karsybayeva	
Practical healthcare representative		
Head of the Regional Children's Hospital	A.M. Dosanova	
Resident of EP«Pediatric oncology and haematology »	L.B.Kurbanbek	
Minutes of the department meeting № <u>6</u> from « <u>25</u> » « <u>01</u> » 202 <u>4</u> y.		
<b>Discussed at the meeting of the Committee of Educational Programs of the Residency in Pediatric profiles</b>		
<b>Chairman of the Educational Programs Committee</b>	G.E. Bektenova	
№ <u>5</u> from « <u>26</u> » « <u>01</u> » 202 <u>4</u> y.		
<b>Approved by the Clinical Council.</b>		
<b>Chairman of the Clinical Council</b>	Zh.A. Kauyzbay	
№ <u>8</u> from « <u>29</u> » « <u>01</u> » 202 <u>4</u> y.		
<b>Aproved by the First Vice-Rector</b>		
<b>First Vice-Rector</b>	M.M. Esirkepov	
№ <u>  </u> from « <u>30</u> » « <u>01</u> » 202 <u>4</u> y.		
<b>Approved by the Academic Council</b>		
№ <u>14</u> from « <u>31</u> » « <u>01</u> » 202 <u>4</u> y.		



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### Educational program passport

#### 1. Mission of the educational program:

To be a recognized leader in the field of training highly specialized, competitive pediatric oncologists and hematologists.

#### 2. Purpose of the educational program:

Training of highly qualified, competitive pediatric oncologists and hematologists who are able to meet the needs of society in providing medical care to oncological and hematological sick children, apply and develop advanced innovative technologies in medicine, science and practice.

#### 3. Rationale for OP:

Pediatric oncology-hematology deals with blood diseases in children: both those not related to oncology (anemia, thrombocytopenia, etc.) and neoplasms of the blood and hematopoietic tissues (leukemia, lymphoma, etc.). Pediatric oncology deals with "classical" oncological diseases, which are benign or malignant tumors (stomach cancer, lung cancer, melanoma, osteosarcoma, etc.).

Pediatric oncology-hematology is a specialized branch of medicine that deals with the diagnosis, treatment and study of malignant tumors and diseases of the hematopoietic system in children.


One of the most common types of tumors in children is childhood leukemia, or blood cancer. This disease is characterized by abnormal development of blood cells and their uncontrolled reproduction. Childhood leukemia can be difficult for a child and their family. However, thanks to modern methods of diagnosis and treatment, significant progress has been made in the fight against this disease.

In addition to leukemia, pediatric oncology-hematology also diagnoses and treats other malignancies, such as childhood brain tumors, kidney tumors, and bone and soft tissue cancers. Each case requires an individual approach and complex treatment, which often includes chemotherapy, radiation therapy and surgery.

Pediatric oncology-hematology is a complex area of medicine that requires professional knowledge and experience, as well as the careful work of a large team of specialists - oncologists, hematologists, surgeons, and radiation therapists. Comprehensive and timely treatment, emotional support and individual approach are the main principles on which work in this area is based. Thanks to research and improvement of diagnostic, treatment and rehabilitation methods, the chances of recovery for children suffering from cancer are increasing every year. We can confidently say that the work of specialists in the field of pediatric oncology and hematology not only saves lives, but also gives patients hope for the future.

The relevance of the educational program is due to the steady increase in the incidence of blood diseases in children, the rise of hematological malignancies and other malignant neoplasms to second place in the structure of mortality of children over one year of age and, accordingly, the need to train qualified pediatric oncohematologists capable of implementing professional competencies taking into account the growth of hematological diseases, high mortality from hemoblastosis and other malignant neoplasms, the emergence of new informative diagnostic methods and modern treatment of this pathology.



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4. The educational program is developed on the basis of:

- Order of the Minister of Health of the Republic of Kazakhstan dated 07.04.2022 No. KR DSM-63 "On approval of state mandatory standards for levels of education in the field of healthcare";
- Professional standard «Oncology and hematology (children)» (Order of the Minister of Health of the Republic of Kazakhstan dated January 25, 2024 No. 46 "On approval of professional standards in the field of healthcare".
- On Amendments and additions to the Order of the Minister of Health of the Republic of Kazakhstan "On approval of the list of medical specialties of residency programs" dated May 25, 2021 No. KR DSM - 43 and "On approval of standard training programs in medical and pharmaceutical specialties" dated January 9, 2023 No. 4. (Order of the Minister of Health of the Republic of Kazakhstan dated 10 November 2023, No. 164).


5. Area of professional activity. Healthcare

6. Objects of professional activity. Medical organizations providing inpatient and outpatient care, healthcare systems of the Republic of Kazakhstan

#### General information


1	Registration No	7R01100271
2	Code and classification of field of education	7R01 Health (medicine )
3	Code and classification of areas of training	7R011 Health
4	Group of educational programs	R006 Oncology and Hematology for children
5	Code and classification of field of education	7R01106 Oncology and Hematology for children (residency)
6	Type of EP	Updated educational program
7	Degree no ISCE	7
8	Degree no NFC	7
9	Degree no ORC	7
10	Distinctive features of EP	no
	HED-partner	
	HED-partner	
11	List of competencies	<p><b>CC1.</b> Able to identify the main pathological symptoms and syndromes of diseases, be able to carry out differential diagnosis according to the leading syndrome, interpret the results of the examination to make a clinical diagnosis, taking into account the International Statistical Classification of Diseases and Related Health Problems.</p> <p><b>CC2.</b> Able to communicate effectively with patients and their relatives, involving them in discussion and participation in the process of diagnostic, treatment and preventive measures.</p> <p><b>CC3.</b> Able to carry out dynamic monitoring of healthy and sick newborns in neonatal preventive institutions.</p> <p><b>CC4.</b> Able to conduct a clinical examination of infectious</p>



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		<p>and non-infectious patients and make a clinical diagnosis in accordance with modern clinical protocols.</p> <p><b>CC5.</b> Able to assess the potential risks of therapy in pediatric oncohematology, prescribe treatment according to evidence-based practice and determine its effectiveness.</p> <p><b>CC6.</b> Able to organize and carry out a complex of early rehabilitation measures for oncological and hematological diseases of childhood.</p>
12	Results of education	<p><b>LO1</b> Able to formulate a clinical diagnosis, prescribe a treatment plan in accordance with the clinical protocols of diagnosis and treatment of the Ministry of health of the Republic of Kazakhstan, with an assessment of its effectiveness based on evidence-based practice at all levels of medical care for children with cancer and/or hematological diseases.</p> <p><b>LO2</b> Able to effectively interact with children with cancer and / or hematological diseases, their parents, their environment, health professionals in order to achieve the best results for the child;</p> <p><b>LO3</b> Able to assess risks and use the most effective methods to ensure a high level of safety and quality of medical care for children with cancer and / or hematological diseases;</p> <p><b>LO4</b> Able to act within the legal and organizational framework of the health system of the Republic of Kazakhstan in the specialty "Oncology and Hematology for children", provide basic assistance in emergency situations, work as part of interprofessional teams to implement policies to promote children's health</p> <p><b>LO5</b> Able to formulate adequate research questions, critically evaluate professional literature on pediatric Oncology and Hematology, effectively use international databases in their daily activities, and participate in the work of the research team</p> <p><b>LO6</b> Able to train independently and train other members of the professional team, actively participate in discussions, conferences, forums and other forms of continuous professional development in the field of pediatric Hematology.</p>
13	Educational form	Full-time
14	Language of education	Russian, Kazakh
15	Volume of credits	140
16	Training period	2 years
17	Awarded degree, qualification	pediatric oncologist and hematologist doctor
18	Availability of an annex to the	KZ 22BFA00167288



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	license for the direction of personnel training	
19	Availability of EP accreditation	Have from
	Name of accreditation organisation	IAAR
	Validity period of accreditation	№ KZ73LAA00011788. 10.06.2022г.-09.06.2027г.
20	Information about disciplines	App 1.2

App 1.1

**Matrix for correlating learning outcomes in the educational program as a whole with the competencies being developed**


	RE1	RE2	RE3	RE4	RE5	RE6
CC1	+	+	+			
CC2		+		+		
CC3			+		+	
CC4				+		
CC5					+	
CC6						+

App 1.2

**Competency/learning outcome attainability matrix**


№	Name of discipline	Brief description of the discipline	Cycle	Component	Num. of credits.	RE formation
1	Pediatric oncology and hematology in hospital	Oncological and hematological diseases of children of different ages: clinical picture, diagnosis, differential diagnosis, treatment in a hospital setting. Indications for trepanobiopsy, lumbar puncture and technique. Treatment programs for children with malignant tumors. Standard for determining a case of coronavirus infection with Covid-19 in children with cancer and an algorithm for providing emergency care.	SD	RC	47	LO1 LO2 LO3
2	Intensive care in pediatric oncology and hematology.	Diagnosis and emergency medical care for threatening conditions in oncohematological patients. Methods of pain relief and intensive care. Evidence-based medicine. Principles of infusion-transfusion therapy, correction of electrolyte disturbances in oncological and hematological diseases of childhood. Basic principles of intensive care for	SD	RC	21	LO3 LO4



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		coronavirus infection COVID-19 in children with cancer.				
3	Clinical and laboratory diagnostics in pediatric oncology and hematology.	On the activities of structural units of healthcare organizations that carry out laboratory diagnostics, as well as the volume and types of research they conduct. Standard for organizing laboratory diagnostics. The latest laboratory diagnostic methods and modern diagnostic technologies in pediatric oncology and hematology. Interpretation of results laboratory research in pediatric oncohematology. Laboratory hemocytology.	SD	RC	15	LO3 LO5
4	Visual diagnostics in pediatric oncology and hematology.	Principles of radiation diagnostics in pediatric oncology and hematology. Technique and interpretation of X-rays, ultrasound, computed tomography, magnetic resonance imaging, positron emission tomography for cancer. Algorithm for diagnostic research in pediatric onco-hematology.	SD	RC	9	LO3 LO5
5	Radiation therapy in pediatric oncology and hematology.	Radiation therapy for all types of cancer in children. Chemotherapy regimens depending on the morphological form of the disease in children of different ages. Main methods of therapy: (craniospinal irradiation; total lymphoid irradiation and total body irradiation; conformal irradiation; intensity modulated radiation therapy (IMRT); mobile irradiation (VMAT); tomotherapy (TomoTherapy).	SD	RC	8	LO3 LO6
6	Outpatient pediatric oncology with hematology.	Clinic, diagnosis and treatment in a polyclinic for hematological and oncological sick children. Evidence-based medicine in outpatient clinical practice. Screening program. Organization of dispensary observation of children. Ethical and organizational aspects of palliative care for children.	SD	RC	34	LO1 LO2 LO3
7	Modern aspects of rehabilitation in pediatric oncohematology	Issues of rehabilitation of oncological and hematological patients of early and older age. Medical and social examination for oncological and hematological diseases. Medical rehabilitation program for children of various ages with neuro-oncological diseases (medulloblastoma and craniopharyngioma). Principles of clinical nutrition for children with cancer.	SD	CC	4	LO2 LO3 LO5
8	Pathomorphological	Pathomorphology of hemoblastoses in	SD	CC		LO5



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	diagnosis in pediatric oncology.	children. Lymphomas. Pathomorphological diagnosis of lymphoid tumors. Pathomorphology of tumors of the central nervous system. Acute lymphoblastic leukemia. Solid tumors. Clinical and pathological approaches to intravital diagnosis of tumors. Research methodology in the pathomorphology of malignant tumors.				LO6
9	Clinical diagnostics in pediatric oncology.	Principles of immunotherapy for immunodeficiency states, modern methods of immunodiagnosis. Immunity in childhood cancer. Types of immunity. Immunopathology. Primary immunodeficiencies. Secondary immunodeficiencies. Immunodiagnosis of autoimmune disorders. Transplant immunity. Modern aspects of stem cell transplantation.	SD	CC		LO3 LO5
10	Clinical immunology in pediatric oncology.	Ethical, psychosocial and organizational aspects of palliative care for children. Palliative and symptomatic care for tumors in children. Modern principles of radical and palliative treatment of sick children with malignant tumors. Symptom control and crisis situations in palliative care for children.	SD	CC		LO2 LO3 LO6
Total:					138	
Final examination:					2	
Total:					140	

#### Matrix for achieving RE by various teaching methods and assessment methods

Results of education	Methods of education and teaching	
RE1. Able to formulate a clinical diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all stages of neonatal care.	Analysis of the material, feedback from the resident	Modeling situations Maintaining medical records
RE2. Able to effectively interact with children with cancer and/or hematological diseases, their parents, their environment, and health care professionals in order to achieve the best results for the child.	Analysis of the material, feedback from the resident	Modeling situations Maintaining medical records
RE3. Able to assess risks and use the most effective methods to ensure the highest level of safety and quality of neonatal care	Supervision of clinical work	
RE4. Able to act within the legal and	Supervision of clinical	Maintaining medical



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organizational framework of the healthcare system of the Republic of Kazakhstan in the specialty "Oncology and hematology for children", provide basic assistance in emergency situations, work as part of interprofessional teams to implement policies to improve children's health.	work	records
RE5. Able to formulate adequate research questions, critically evaluate professional literature on pediatric oncology and hematology, effectively use international databases in their daily activities, and participate in the work of a research team.	«Magazine club»	Writing abstracts and articles Public performance
RE6. Capable of learning independently and teaching other members of the professional team, actively participating in discussions, conferences, forums and other forms of continuing professional development in the field of pediatric oncohematology.	Observation	

**Matrix of compliance of RE with assessment methods**

RE	Assessment methods	
RE1. Able to formulate a clinical diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all stages of neonatal care.	Testing Oral survey	Essay (Short and long) Short answer
RE2. Able to effectively interact with children with cancer and/or hematological diseases, their parents, their environment, and health care professionals in order to achieve the best results for the child.	OSCE (with skill testing stations). Mini clinical exam.	Long-term case Keeping diaries
RE3. Able to assess risks and use the most effective methods to ensure the highest level of safety and quality of neonatal care	Analysis of records in the medical history Analysis of doctor's activity records	Analysis of records in the medical history
RE4. Able to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan in the specialty "Oncology and hematology for children", provide basic assistance in emergency situations, work as part of interprofessional teams to implement policies to improve children's health.	360 score	Patient reviews Feedback from other students Score 360
RE5. Able to formulate adequate research questions, critically evaluate professional literature on pediatric oncology and hematology, effectively use international databases in their daily activities, and participate in the	Abstract/presentation	Publications



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work of a research team.		
RE6. Capable of learning independently and teaching other members of the professional team, actively participating in discussions, conferences, forums and other forms of continuing professional development in the field of pediatric oncohematology.	Portfolio	Clinical records Self-esteem

**Work plan for the entire period of study:**

Cycle of discipline	Code of discipline	Name of discipline/module	Amount of credits	Common hours	Classrooms	IWR		1 year education	2 year education	Form of controle	Final examination
						IWRT	IWR				
БП/П Д/РД/		<b>Cycle of major disciplines</b>	<b>138</b>	<b>4140</b>							
БП/П Д/РД/		<b>Required component</b>	<b>134</b>	<b>4020</b>							
		R-OGDS Pediatric oncology and hematology in hospital	47	1410	282	916	212	47		Ex	
		R-ITDOG Intensive care in pediatric oncology and hematology.	21	630	126	409	95	21		Ex	
	MK/ OK/ D	R-KLDOG Clinical and laboratory diagnostics in pediatric oncology and hematology.	15	450	90	292	68		15	Ex	
	UC/ D	R-VDDOG Visual diagnostics in pediatric oncology and hematology	9	270	54	189	27		9	Ex	
		R-LTDOG Radiation therapy in pediatric oncology and hematology.	8	240	48	156	36		8	Ex	
		R-APDOG Outpatient pediatric oncology with hematology.	34	1020	204	663	153		34	Ex	
		<b>Component of choice</b>	<b>4</b>	<b>120</b>	<b>24</b>	<b>78</b>	<b>18</b>	<b>2</b>	<b>2</b>		
		R-SARDO Modern aspects of rehabilitation in pediatric oncohematology									
	TK/ KV/ OC/	Pathomorphological diagnosis in pediatric oncology.	2	60	12	39	9		2	Ex	
		R-PDDO Clinical immunology in pediatric oncology.	2	60	12	39	9	2		Ex	
		R-PDO Palliative pediatric oncology									
		<b>TOTAL:</b>	<b>138</b>	<b>4140</b>	<b>828</b>	<b>2691</b>	<b>621</b>				
IC		<b>INTERMEDIATE CERTIFICATION</b>									
FE		<b>FINAL EXAMINATION</b>	<b>2</b>	<b>60</b>					<b>2</b>		<b>60</b>
		<b>TOTAL</b>	<b>TOTAL:</b>	<b>4200</b>	<b>828</b>	<b>2691</b>	<b>621</b>	<b>70</b>	<b>70</b>		<b>60</b>